

177 nese (from at least the sixth century) and after 1498 the Portuguese, followed by the English, Dutch, and French (Logan, 1951, I: 251-254, 258, 294-399).

133 The coast falls roughly into three natural divisions: the coastal strip, the midlands, and the highlands rising into the Ghats (cf. Buchanan, 1807: 565-566). The coastal strip is flat and sandy. Its chief product is coconuts, with some rice and bananas. In the southern half it is

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[243] broken by salt-water lagoons which for over a hundred miles form a continuous navigable chain parallel to the sea. Most of the chief

361 towns are situated on the coast, divided by chains of little fishing vil-

• [487] lages. Many of the coast towns are ancient, and most of them lie at the mouths of navigable rivers which flow westward from the Ghats.

[439] From time immemorial raw materials, chiefly pepper, were brought by boat from the inland hillsides for shipment from these ports.

133 The midlands comprise low hills and fertile valleys. Broad strips of alluvial rice lands lie in the valleys, thinning out as the land rises into the foothills of the Ghats. On the hill slopes are gardens of co-

245 conut palms, bananas, pepper, ginger, and many fruit trees such as

[439] jack and mango. It was probably wild pepper which was exported in Roman times, but pepper and other spices have been deliberately

[177] cultivated at least since 1290 (Ricci, 1931: 326). Cashew nuts, introduced by the Portuguese, formed an additional export crop. Small

361 merchant settlements, market-centers, and the military fortifications of

443 petty chiefs existed at strategic points on river banks. Some of these centers grew into bazaar towns in the nineteenth century. But the

243 mass of the population traditionally lived, as today, in scattered vil-

231 lage communities on garden land surrounding or surrounded by fields of wet rice, the main subsistence crop. Wet-rice cultivation depended

on plough agriculture with teams of oxen or water buffalo. Goats and chickens were the other significant domestic animals.

361 The highlands rising into the Ghats were covered mainly by deciduous forests. The foothills, interspersed with occasional rice flats,

[133] were sparsely populated by people of the same cultural groups as those in the plains. They eked out their wet-rice cultivation with gar-

[241] den crops of fruits, spices, and vegetables, with shifting hoe cultivation of dry grains on hillsides, and with forest hunting of elephant,

[224] deer, and pig. Higher in the mountains lived primitive tribes of hunters and shifting cultivators, having only occasional contacts with the kingdoms of the plains.

132 Throughout most of the area Kerala's rainfall varies between 75 and 170 inches, being heaviest in the north where the mountains are

Nayar: North Kerala

The Nayars of North Kerala live between the Chandragiri and the Kora rivers. This area lay north of the Calicut kingdom and had been conquered by the Kolattiri kings at some period before the fourteenth century (Logan, 1951, I: 283; Innes, 1908: 57). It then disintegrated into the small kingdoms of Kolattunad, Kottayam, and Kadattunad. North Kerala was invaded from the Bednur kingdom of South Canara in the 1730's. It was later occupied by Muslim armies from Mysore between 1766 and 1792, after which it passed under British rule (Logan, 1951, I: 360, 399-473). This account deals with conditions before 1760, so far as these are known, and with the major changes of the nineteenth century. 175
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Ecology

The mountains approach nearer to the sea in North Kerala than in Central Kerala. There are fewer stretches of lowland suitable for wet-rice cultivation, and gardens of fruits, nuts, vegetables, and spices on hillsides are more extensive. Since rice was the main subsistence crop, population density was lower than in Central Kerala. The houses of a village (*dēsam*) were scattered in gardens on hillsides surrounding a wet-rice flat in a valley. Villages were often separated by three to six miles of uncultivated scrub or jungle. Until the Mysoreans built roads after the 1760's, transport and communication by narrow mountain paths were difficult, especially in the heavy monsoons. 133
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North Kerala had four major ports during the period of European trade—Cannanore, Tellicherry, Mahé, and Badagara (Hamilton, ed. 1727: 369-371). Pepper and other spices were exported from inland villages probably from Roman times, but villages were virtually self-sufficient for food until the mid-eighteenth century. After that time the Mysoreans' roads permitted greater import of goods both from the coast and from Mysore, and greater spatial mobility. In the nineteenth century cash-crop farming for export increased, as did imports of 439
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TECHNO-ECONOMIC SURVEY OF KERALA

133 1.9 The distance within which these rivers descend to the sea level being very
 379 short, there are generally a large number of steep falls or a series of cascades in their
 courses. These provide a rich potential for generation of hydro-electric power,
 which can be generated at a low cost (1.7 nP per kWh on an average). This low
 cost power potential is an important asset of Kerala from the point of view of the
 future programmes of industrialization.

133 1.10 Some other implications of topographical features are not so obvious. For
 example, the lakes, the lagoons and the backwaters fringed with coconut palms, no
 doubt, impart to Kerala its characteristic scenic beauty and provide one of the
 chief tourist attractions. Their importance, however, goes much beyond the purely
 133 aesthetic aspect. In fact, the backwaters—especially in the Travancore-Cochin region
 288 —are indirectly responsible for providing the means of livelihood to a vast section
 182 of the population. Coir spinning, the chief industry of Kerala, is located in this State
 primarily because of the natural retting facilities provided by the backwaters. The
 availability of these facilities is unique in the case of Kerala. In almost all other
 coconut-growing areas of India, the coconut husks go waste because of the absence
 167 of natural retting facilities. Since coir industry provides an occupation to 4 to 5
 lakh persons (about 10 % of the total working force and 40 % of industrial
 working force), one can well imagine what the unemployment situation in Kerala
 would have been in the absence of the backwater facilities. The backwaters have
 133 also facilitated the development of a wide network of inland waterways all along the
 288 coastline. Apart from employing a large number of persons in towing or rowing the
 167 boats, the inland waterways provide inexpensive modes of transporting the agricul-
 tural produce and light industrial goods manufactured in the coastal area.

13 1.11 Up till now only some of the favourable consequences of physical features
 have been pointed out. The sloping terrain and preponderance of backwaters in
 the coastal area also possess a negative aspect. The heavy downpour is gradually
 leaching off the mineral content of the soils, thus rendering them generally poor in
 their fertility status. One of its ultimate consequences is the fact that livestock feed
 231 available in Kerala is deficient in mineral content and this in turn reduces the yield
 of milk of the livestock. The heavy precipitation of rain also creates a serious flood
 control problem in Kerala.

133 1.12 The backwaters raise other problems as well. During the dry summer
 months saline water from these flows into the lower reaches of the rivers, many of
 which fall into the backwaters. This has an adverse effect on cultivation and the
 supply of drinking water in the coastal areas. Coastal areas are, therefore, beset
 with the problem of salinity control. The chain of consequences does not stop here.
 312 Recently implementation of one of the important salinity control measures in
 Kerala, viz., the Thanneermukkom bund across the Vembanad lake has created a
 new problem in its wake. The accretion of limeshell deposits, an important raw
 material found in the lake, depends on the high salinity of the lake water. Since,
 after putting up of the barrage salinity of water will get reduced, it will have adverse
 339 repercussions on the long run supply position of the limeshells. This, in turn,
 jeopardizes the long run prospects of the cement industry in the State which is based
 on the limeshells.

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the services, which have declined from Rs. 23.8 lakhs in 1956-57 to Rs. 17.4 lakhs in 1959-60.

8.24 The allotments during the Second Plan for the construction of roads and bridges were Rs. 2.146 crores and Rs. 1.932 crores respectively. The expenditure on roads and bridges in the first four years of the Plan amounted to Rs. 2.871 crores and Rs. 1.041 crores. The expenditure on maintenance in the three years 1956-59 was about Rs. 2.956 crores. The achievement in respect of road construction, improvement and upgrading and construction of major bridges lagged seriously behind targets in the fourth year of the Second Plan.

8.25 The Central Government's expenditure on the construction and improvement of national highways was as follows:

1958-59	Actual	Rs. 11 lakhs
1959-60	Revised Estimate	Rs. 32 lakhs
1960-61	Budget Estimate	Rs. 55 lakhs

8.26 The number of buses and trucks rose sharply in the State during the four years of the Second Plan; but particulars are lacking regarding the amount of public or private investment on vehicles. The nationalized passenger services planned to add 460 buses to the fleet, 300 for rehabilitation and new 160 for operating, on a stretch of 400 miles of roads. If achieved, this would involve an investment of the order of Rs. 2 crores. Between 1956-57 and 1958-59 the capital at charge rose by Rs. 78.4 lakhs only.

THE INLAND WATERWAYS

8.27 The inland waterways of the State comprise: (a) the west coast canal system, stretching continuously except for a land-locked break between Azhikkal and Badagara (29.5 miles) a distance of over 347 miles from Trivandrum to Hosdurg; (b) cross canals, 387 miles long, mostly in the south of the State serving the commercial region in the midlands, and about 521 navigable miles in its various rivers. The Ashtamudi and Vembanad lakes provide extensive navigation facilities for traffic to and from Alleppey, Kottayam, Quilon and Cochin.

8.28 The waterways present a variety of problems though none of them are insuperable. These should be tackled systematically as the waterways promise superior economic advantages. Natural limitations arise from weather and rainfall; most rivers are navigable upto their middle reaches only during the period of the monsoons. In many places they are narrow and shallow (e.g., on the Trivandrum-Quilon route). Dredging is often insufficient and even the dredgers are unsuitable for dredging the narrow sections. Tugging services are required in hazardous areas, e.g., Pathiramanal-Munroe light area in the Vembanad lake. Bridges are often low, as in Varkala and on the Trivandrum-Quilon route, and they do not permit operation, particularly of passenger boats. Landing places have not been provided in many places, and where they are, they are not maintained in proper condition for use. A

great drawback of water transport is insecurity and pilferage of the cargo. The

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524 and boys had preference over girls in this matter, but the latter could inherit if there were no male heirs.

427 The plot of land upon which the house was built was leased to the family as a sort of *kudiyiruppu*. It cannot be called a fully orthodox one, since Krishnan said that he had paid fifty rupees to the former resident, a coolie of the Ertachan caste (low caste Nayar), twenty three years ago when he took over from him, and another fifty rupees to the *janmi*, a Nambudri Brahmin called Manjalata Nambudri. Since then, rent had been fixed at eight annas and six pies a year, but he had not paid it for the last two years, he said, because nobody had asked him to do so! He made his living all right as a brazier, although it was not a very lucrative profession.

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564 Having been to polyandrous families of the four sub-castes of the Kammalans, I next went on to investigate the polyandry of their associated artisan sub-castes, of which six were reliably reported to practise it. I began with the *Kolla-kurups* or shampooers, masseurs and leather shield makers. To these are assimilated also the *Vil-kurups* or bow makers, but I did not have the opportunity to see any. There are a subdivision of the main sub-caste, on the basis of speciality, as the *Puri-asari* are of the regular *Asari*.

361 On the 20th of November, 1949, I went to the house of a *Kolla-kurup* near Palappuram. This town is on the main Shoranur-Palghat road, east of Ottappalam, just before reaching the cross-roads of Lak-kidi. We left the car on the highway, and proceeded on foot to the south of it, along a narrow, winding path which took us past luscious, green paddy fields lined with coconut trees, to a largish house, built of clay and laterite but thatched in the usual way, standing on an elevated piece of ground, like a platform. There was a gate to pass through, and as we went in we saw members of the family sitting about on a kind of rough, dried-clay verandah running round the walls of the building.

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1487 * 595 There were quite a lot of them, and they were all very gay and noisy. They started singing at the sight of us, and, laughing and shouting, made a considerable fuss of us. The contrast to the rather dismal atmosphere of the other houses that we had visited was very marked. After my guides and interpreters had somewhat quietened the children, we managed to speak to a man called Shankaran, aged thirty six, who was the eldest living male member of the family's second generation. With him were his wife and children, as well as his twenty five year old sister, Kalyany. None of the people wore anything from the waist upwards, and only a piece of cotton cloth covered the lower part of their bodies.

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